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10/767,838	01/29/2004	Byron G. Merrell	15621.1	2983

22913 7590 03/10/2006

WORKMAN NYDEGGER  
(F/K/A WORKMAN NYDEGGER & SEELEY)  
60 EAST SOUTH TEMPLE  
1000 EAGLE GATE TOWER  
SALT LAKE CITY, UT 84111

EXAMINER

WACHTEL, ALEXIS A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/767,838

Applicant(s)

MERRELL ET AL.

Examiner

Alexis Wachtel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 1-29-04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19, 21-28, 30, 33-40, 42, 45-50, 52, 53, 57-60 and 62 is/are rejected.
- 7) ☒ Claim(s) 20, 29, 31, 32, 41, 43, 44, 51, 54-56 and 61 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10-4-04; 12-4-05</u> | 6) <input type="checkbox"/> Other: _____  |

***Detailed Action***

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 52,53,62 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,948,468 to Reeves et al.

With respect to claim 52, Reeves et al teach a method for processing a feed material, the method comprising: passing a feed material down through a heating chamber of a retort (Fig.1), the heating chamber having a plurality of vertically and horizontally spaced apart baffles (27,29) disposed therein; heating the baffles such that as the feed material passes down through the heating chamber the feed material is heated so as to emit an oil vapor, the oil vapor rising within the heating chamber and entering into one of a plurality of collection channels; gathering the oil vapor from the collection channels; and condensing the oil vapor into an oil (Col 1, lines 29-32).

With respect to claim 53, Reeves et al teach separating the feed material by size prior to passing the feed material into the heating chamber so that the feed material has a maximum diameter in a range between about 2 mm to about 10 mm (Col 8, line 19) .

With respect to claim 62, Reeves et al teach a method for processing a feed material, the method comprising: passing a feed material down through a heating chamber of a retort (Fig.1), the heating chamber having a plurality of vertically and

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horizontally spaced apart baffles (27,29) disposed therein such that substantially all of the feed material that vertically passes down through the heating chamber is horizontally displaced as the feed material passes by the baffles; heating the feed material within the heating chamber such that the feed material emits an oil vapor; collecting the oil vapor from within the heating chamber; and condensing the oil vapor into an oil (Col 1, lines 29-32).

3. Claims 1-7,11,21-23,26-28,30,33,35-40,45,47 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,165,216 to White et al.

With respect to claim 1, White et al teach a baffle (44) for use in heating and mixing a feed material within a retort, the baffle comprising: an elongated body having a top surface and an opposing bottom surface, at least a portion of the top surface having an inverted substantially V-shape configuration; and means (42) mounted at least partially on, within, or directly adjacent to the elongated body for selectively heating the elongated body.

With respect to claim 2-4, (Fig.5, item 44) reads on the instant claims,

With respect to claim 5,6,7,23 White et al enables use of the claimed angles (Col 4, lines 35-40).

With respect to claim 11, since White et al teach that the baffle is used in a process environment having temperatures of 750F to 1000F, the baffles are inherently made of a material capable of resisting the claimed temp.

With respect to claim 21, White et al teach a retort heating apparatus (11) for processing feed material, the retort heating apparatus comprising: a heating chamber

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(interior of 11) bounded at least in part by a side wall, the side wall having a plurality of horizontally and vertically spaced apart apertures (43) formed thereon so as to provide fluid communication through the side wall; a plurality of vertically and horizontally spaced apart baffles (44) at least partially disposed within the heating chamber, each baffle comprising an elongated body having a top surface, at least a portion of the top surface having an inverted substantially V-shape configuration; and a plurality of collection channels (baffles and apertures function together to define collection channels) disposed within the heating chamber, each collection channel being aligned with a corresponding aperture, the collection channels being adapted to collect vapors and channel the vapors to the corresponding apertures.

With respect to claims 22,27,39 (Fig 5, item 44) of White et al reads on the instant claim.

With respect to claim 26, White et al teach that the plurality of baffles are disposed in a plurality of vertically spaced apart rows, adjacent rows being horizontally staggered relative to each other (Fig.4).

With respect to claim 28, White et al teach means (42) for heating the feed material within the heating chamber.

With respect to claim 30, White et al teach that a vapor chamber (42) formed adjacent to the heating chamber, each aperture in the side wall providing fluid communication between the heating chamber and the vapor chamber.

With respect to claim 33, White et al teach a retort heating apparatus (11) for processing feed material, the retort heating apparatus comprising: a heating chamber

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(interior of 11) bounded at least in part by a side wall; a plurality of vertically and horizontally spaced apart baffles (Fig.4, Fig.5) at least partially disposed within the heating chamber, each baffle comprising an elongated body having a top surface, at least a portion of the top surface comprising a substantially planar first side face and a substantially planar second side face that are disposed in diverging planes; and means for heating the feed material within the heating chamber.

With respect to claim 35, White et al teach a retort heating apparatus (11) for processing a feed material, the retort heating apparatus comprising: a heating chamber (interior of item 11) bounded at least in part by a side wall; a plurality of baffles (Fig.4, Fig.5) at least partially disposed within the heating chamber, each baffle comprising an elongated body having a top surface, at least a portion of the top surface being arched, the plurality of baffles being vertically and horizontally spaced apart so that substantially all of the feed material that vertically passes through the heating chamber is horizontally displaced as the feed material passes by the baffles; and means for heating the feed material within the heating chamber.

With respect to claim 36, White et al teach that the portion of the top surface being arched has an inverted substantially U- or V-shape configuration (Fig.4, Fig.5).

With respect to claim 37. White et al teach means for feeding the feed material into the heating chamber while preventing the free flow of air into the heating chamber since feed means 13 is substantially sealed.

With respect to claim 38, White et al teach a plurality of apertures (43) extending through the side wall.

With respect to claim 40, White et al teach a vapor chamber (42) formed on a side of the side wall opposite the heating chamber, each aperture in the side wall providing fluid communication between the heating chamber and the vapor chamber.

With respect to claim 45, White et al teach that the plurality of baffles are disposed in a plurality of vertically stacked rows, each row being horizontally staggered relative to the adjacent vertical row (Fig.4).

With respect to claim 47, White et al teach a gas jet aligned with a collection channel of a select baffle. Examiner interprets a gas jet merely as conduit (26) interface with chamber (42)

4. Claims 1,4,11-19 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2,786,125 to Drugman et al.

With respect to claim 1, Drugman et al teach a baffle (Fig.4) for use in heating and mixing a feed material within a retort, the baffle comprising: an elongated body having a top surface and an opposing bottom surface, at least a portion of the top surface having an inverted substantially V-shape configuration; and means (16) mounted at least partially on, within, or directly adjacent to the elongated body for selectively heating the elongated body.

With respect to claim 4, Drugman et al teach that the top surface comprises a substantially planar first side face and a substantially planar second side face that are disposed in diverging planes (Fig.4).

With respect to claim 11, Drugman et al teach the baffle is comprised of a material capable of withstanding a temperature of at least 500 C (Col 2, lines 26-31).

With respect to claim 12, Drugman et al teach that the means for selectively heating comprises at least one electrical heating filament (16) mounted at least partially on, within, or directly adjacent the body.

With respect to claim 13, Drugman et al teach that the body is tubular and has an interior surface bounding a chamber (Fig.4).

With respect to claim 14, Drugman et al teach that the means for selectively heating comprises a secondary body removably disposed within the tubular body (Col 2, lines 52-61).

With respect to claim 15, Drugman et al teach that the modular body comprises a top wall on which the top surface is formed and an opposing bottom wall on which the bottom surface is formed, the secondary body being disposed within the chamber of the tubular body so that the secondary body biases against the top wall of the tubular body and the secondary body is spaced apart from the bottom wall of the tubular body (Fig.4).

With respect to claim 16, Drugman et al teach that an electrical heating filament is mounted on the secondary body (Col 2, lines 52-61).

With respect to claim 17, Drugman et al teach the body is comprised of a plurality of interconnected sections (Fig.5).

With respect to claim 18, Drugman et al teach that the body has a first end and an opposing second end, an insulation plug being mounted to the first end of the body (Fig.4); (Col 2, lines 52-61).

With respect to claim 19, Drugman et al teach that the body is comprised of a



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metal and the insulation plug is comprised of a refractory material (Col 2, lines 26-31); (Col 2, lines 52-61).

5. Claims 1-4,21,22,28,33,35,36,37,38,42 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2,814,587 to Dijck.

With respect to claim 1, Dijck teach a baffle (10) for use in heating and mixing a feed material within a retort, the baffle comprising: an elongated body having a top surface and an opposing bottom surface, at least a portion of the top surface having an inverted substantially V-shape configuration; and means mounted at least partially on, within, or directly adjacent to the elongated body for selectively heating the elongated body.

With respect to claim 2, Dijck teach that the bottom surface at least partially bounds a collection channel adapted to collect gases or vapors (10).

With respect to claim 3, Dijck teach that the bottom surface has an inverted substantially U- or V-shaped transverse cross section that at least partially bounds the collection channel (10).

With respect to claim 4, Dijck teach that the top surface comprises a substantially planar first side face and a substantially planar second side face that are disposed in diverging planes (10).

With respect to claim 21, Dijck teach a retort heating apparatus (Fig.1) for processing feed material, the retort heating apparatus comprising: a heating chamber (defined by 2,4) bounded at least in part by a side wall, the side wall having a plurality of horizontally and vertically spaced apart apertures (defined by pipe outlets having lines 9

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and 15) formed thereon so as to provide fluid communication through the side wall; a plurality of vertically and horizontally spaced apart baffles (10) at least partially disposed within the heating chamber, each baffle comprising an elongated body having a top surface, at least a portion of the top surface having an inverted substantially V-shape configuration; and a plurality of collection channels disposed within the heating chamber, each collection channel being aligned with a corresponding aperture, the collection channels being adapted to collect vapors and channel the vapors to the corresponding apertures.

With respect to claim 22, Dijck teach that the portion of the top surface having the inverted substantially V-shape configuration comprises a substantially planar first side face and a substantially planar second side face that are disposed in diverging planes (10).

With respect to claim 28, Dijck teach means for heating the feed material within the heating chamber (Fig.1).

With respect to claim 33, Dijck teach a retort heating apparatus for processing feed material, the retort heating apparatus comprising: a heating chamber (defined by 2,4) bounded at least in part by a side wall; a plurality of vertically and horizontally spaced apart baffles (10) at least partially disposed within the heating chamber, each baffle comprising an elongated body having a top surface, at least a portion of the top surface comprising a substantially planar first side face and a substantially planar second side face that are disposed in diverging planes; and means for heating the feed material within the heating chamber.

With respect to claim 35, Dijck teach a retort heating apparatus for processing a feed material, the retort heating apparatus comprising: a heating chamber (defined by 2,4) bounded at least in part by a side wall; a plurality of baffles (10) at least partially disposed within the heating chamber, each baffle comprising an elongated body having a top surface, at least a portion of the top surface being arched, the plurality of baffles being vertically and horizontally spaced apart so that substantially all of the feed material that vertically passes through the heating chamber is horizontally displaced as the feed material passes by the baffles; and means for heating the feed material within the heating chamber.

With respect to claim 36, Dijck teach that the portion of the top surface being arched has an inverted substantially U or V-shape configuration (10).

With respect to claim 37, Dijck teach means for feeding the feed material into the heating chamber while preventing the free flow of air into the heating chamber (Col 3, lines 28-33).

With respect to claim 38, Dijck teach a plurality of apertures extending through the side wall (defined by pipe outlets having lines 9 and 15).

With respect to claim 42, Dijck teach that each body is tubular and has an interior surface bounding a chamber (10).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 8-10,24,25,34,48,49 rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,165,216 to White et al.

With respect to claims 8-10,24,25,34 White et al do not teach the structure of the claimed baffle. However, absent a showing of unexpected results, having used the claimed baffle structure would have been a matter or routine engineering choice and obvious at the time of the invention.

With respect to claim 48, White et al do not teach that the plurality of baffles each have a common maximum width, the plurality of baffles comprising: a first row of the baffles each horizontally separated by a first distance substantially equal to the common maximum width; and a second row of the baffles vertically separated from the first row by a second distance, each baffle of the second row being centrally disposed midway between corresponding baffles of the first row. However, absent a showing of unexpected results, having configured the plurality of baffles as claimed would have been a matter or routine engineering choice and obvious at the time of the invention.

With respect to claim 49 White et al do not teach that the maximum width of the baffles is in a range between about 5 cm to about 15 cm. However, absent a showing of unexpected results, having used baffles in the claimed size range would have been a matter or routine engineering choice and obvious at the time of the invention.

8. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2,786,125 to Drugman et al.

With respect to claims 5-9, Drugman et al do not teach the structure of the

claimed baffle. However, absent a showing of unexpected results, having used the claimed baffle structure would have been a matter or routine engineering choice and obvious at the time of the invention.

9. Claims 5-10,23-26,34,45,48-50 rejected under 35 U.S.C. 103(a) as being unpatentable over US 2,814,587 to Dijck.

With respect to claim 5-10,23-25,34, Dijck does not teach the structure of the claimed baffle. However, absent a showing of unexpected results, having used the claimed baffle structure would have been a matter or routine engineering choice and obvious at the time of the invention.<sup>4</sup>

With respect to claim 26 and 45, Dijck does not teach that the plurality of baffles are disposed in a plurality of vertically spaced apart rows, adjacent rows being horizontally staggered relative to each other. However, absent a showing of unexpected results, having configured the plurality of baffles as claimed would have been a matter or routine engineering choice and obvious at the time of the invention.

With respect to claim 48-50, Dijck does not teach that the plurality of baffles each have a common maximum width, the plurality of baffles comprising: a first row of the baffles each horizontally separated by a first distance substantially equal to the common maximum width; and a second row of the baffles vertically separated from the first row by a second distance, each baffle of the second row being centrally disposed midway between corresponding baffles of the first row. However, absent a showing of unexpected results, having configured the plurality of baffles as claimed would have been a matter or routine engineering choice and obvious at the time of the invention.

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9. Claims 58-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,948,468 to Reeves et al.

With respect to claims 58-60, Reeves et al do not teach processing the vapor streams as claimed. However, since it is well established in the petroleum refining art to separate various hydrocarbon fractions in a refining process and condensing said fractions as discrete and separate fractions or blends of other fractions, it would have been obvious to have modified the method of Reeves et al such the resultant vapor streams resulting from a retorting process are separated and condensed as claimed. One of ordinary skill would have been motivated by the desire to provide onset refining means.

9. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,948,468 to Reeves et al in view of US 4,601,812 to Anderson et al.

With respect to claim 57, Reeves et al as set forth above do not teach heating the feed material to a temperature of at least 100C prior to passing a feed material down through the heating chamber of the retort. Anderson et al teach that oil shale feed is advantageously preheated to about 400F. The use of feed preheat greatly reduces amount of spent shale needed to provide adequate retorting temperature for the mix, allowing a substantial reduction in retort size compared to processes where the feed is not preheated (Col 2, lines 24-35). In view of this teaching it would have been obvious for one of ordinary skill to have preheated the feed of Reeves et al prior to passing a feed material down through the heating chamber of the retort. One of ordinary skill would have been motivated by the desire to greatly reduce the amount of spent shale

needed to provide adequate retorting temperature for the mix, allowing a substantial reduction in retort size compared to processes where the feed is not preheated.

***Allowable Subject Matter***

10. Claims 20,29,31-32,41,43,44,51,54-56 and 61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter.

With respect to claim 20, the best prior art to White does not teach that the top surface of the body is comprised of a first material and the bottom surface of the body is comprised of a second material, the second material being different than the first material such that when the body is heated, the bottom surface is cooler than the top surface.

With respect to claim 29, the best prior art to White does not teach that the means for heating the feed material within the heating chamber comprises an electrical heating filament at least partially disposed on, within, or directly adjacent to each baffle.

With respect to claim 31, the best prior art to White does not teach a collection plate disposed within the vapor chamber at a downwardly curved or sloped orientation, the collection plate having lower end disposed adjacent to the side wall and an opposing upper end disposed away from the side wall; and a return slot formed through the side wall at or adjacent to the lower end of the collection plate, the return slot providing fluid communication between the heating chamber and the vapor chamber.

With respect to claim 32, the best prior art to White does not teach that the vapor chamber is bounded above by a first downwardly sloping collection plate and the vapor chamber is bounded below by a second downwardly sloping collection plate.

With respect to claim 41, the best prior art to White does not teach that a collection plate disposed within the vapor chamber at a downwardly curved or sloped orientation, the collection plate having a lower end disposed adjacent to the side wall and an opposing upper end disposed away from the side wall; and a return slot formed through the side wall at or adjacent to the lower end of the collection plate, the return slot providing fluid communication between the heating chamber and the vapor chamber.

With respect to claim 43, the best prior art to White does not teach that the means for heating the feed material comprises a secondary body removably disposed within the tubular body.

With respect to claim 44, the best prior art to White does not teach that the means for heating the feed material comprises at least one electrical heating filament disposed at least partially on, within or directly adjacent to each body.

With respect to claim 51, the best prior art to White does not teach a plurality of vertically stacked modular units, each modular unit having a perimeter wall that bounds a portion of the heating chamber, the perimeter wall of each modular unit also comprising a portion of the first wall and the second wall.

With respect to claim 54, the best prior art to Reeves does not teach washing the feed material prior to passing the feed material into the heating chamber.



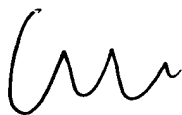
With respect to claim 55, the best prior art to Reeves does not teach that the feed material is washed so as to remove at least a portion of the minerals increasing the porosity of feed material within the feed material.

With respect to claim 56, the best prior art to Reeves does not teach drying the feed material so that the water content of the feed material is reduced to less than at least 5% of the total weight of feed material and water.

With respect to claim 61, the best prior art to Reeves does not teach that each collection channel is formed on a bottom side of a corresponding baffle.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Wachtel whose telephone number is 571-272-1455. The examiner can normally be reached on 10:30am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Glenn Caldarola, can be reached at (571)-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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